



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of

Sergey Fedorovich Golovashchenko

Group Art Unit: 3724

Serial No.: 09/927,281

Examiner: Kenneth E Peterson

Filed: August 10, 2001

For: APPARATUS FOR TRIMMING METAL

Attorney Docket No.: FGT 1452 PA (200-1213)

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BRIEF ON APPEAL

Mail Stop Appeal Brief
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

The following is an Appeal Brief pursuant to the Notice of Appeal filed on October 1, 2003, the two month date expiring Monday, December 1, 2003 for the above identified application.

I. Real Party in Interest

The real party in interest in this matter is Ford Global Technologies, Inc., Dearborn, Michigan (hereinafter "Ford").

II. Related Appeals and Interferences

There are no other known appeals or interferences which will directly affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

III. Status of the Claims

Claims 1-4, and 12-13 stand rejected in the Final Office Action. A copy of the claims on appeal is attached as an Appendix.

IV. Status of Amendments Filed After Final

There have been no amendments filed subsequent to the response after final filed July 1, 2003.

V. Summary of the Invention

The present application is an apparatus for trimming metal 10 (p. 6, lines 3-4) for use with a blank 14 (p. 6, line 6). The apparatus 10 includes a steady blade 16 and a clamping pad 12 securing the blank 14 to the steady blade 16 (p. 6, lines 5-7). The apparatus 10 further includes a moving blade 18 movable past the steady blade 16 for trimming the blank 14 (p. 11, lines 6-7). The moving blade 18 moves substantially perpendicular to an upper surface 20 of the blank 14 (Claim 1). A radius 24 is formed on the leading edge 22 of the moving blade 18 and is adapted to reduce defects in the

blank 14 associated with the trimming process (p 7, lines 9-26). A support element 30 is in communication with the scrap 26 and is adapted to reduce defects in the blank 14 associated with the trimming process (p. 8, lines 13-28). The support element 30 moves substantially perpendicular to the upper surface 20.

Metal trimming processes are subject to numerous difficulties. One such set of difficulties arises from the generation of slivers and burs during trimming operations. Not only to the generation of such defects often require expensive additional finishing procedures, they can also corrupt fit and finish when the slivers find their way into subsequent stamping operations. Common methods of reduction of the gap 19 between the shearing edges can improve these defects but is often limited by functional tolerances and may still produce undesirable levels of defect production. The reduction of sliver production and burr generation remains a significant concern for metal blank processing fields.

There are two (2) independent claims. Claim 1 specifically recites the use of a steady blade 16 and a clamping pad 12 securing the blank 14 to the steady blade 16. The moving blade 18 is movable past the steady blade 16 for trimming the blank 14 wherein *the moving blade 18 moves substantially perpendicular to an upper surface 20 of the blank 14*. A radius 24 is formed on the leading edge 22 of the moving blade 18 and is adapted to reduce defects in the blank 14 associated with the trimming process. A support element 30 is in communication with the scrap 26 and is adapted to reduce defects in the blank 14 associated with the trimming process. *The support element 30 moves substantially perpendicular to the upper surface 20.*

Claim 12 is a method claim for reducing the production of defects during trimming operations. It includes the limitations of moving the moving blade 18 perpendicular to the upper surface 20 of the blank 14. It includes the limitation of reducing strain concentration caused by the moving blade 18 through the use of a radius 24 formed on the leading edge 22 of the moving blade 18. It further includes the limitation of keeping the scrap 26 substantially parallel to the scrap's original orientation during the trimming process.

Figures 3-7 illustrate the apparatus for trimming metal 10 as well as its claimed functioning.

VI. Issues

The following issues are presented in this appeal, the issues correspond directly to the Examiner's final grounds for rejection in the Final Office Action:

- (1) Whether claims 1-4,12 and 13 are patentable under 35 USC 103(a) over Kohama (US 4,660,401) in view of Li et al (US 5,820,999).
- (2) Whether claims 1-4,12 and 13 are patentable under 35 USC 103(a) over Madsen (US 3,167,985) in view of Li et al (US 5,820,999).

VII. Grouping of Claims

The rejected claims have been grouped together by the Examiner in both of the rejections.

VIII. Argument

Ground 1 rejections

The Applicant respectfully asserts that ground 1 as defined above 35 USC 103(a) over Kohama (US 4,660,401) in view of Li et al (US 5,820,999) is improper and should be overturned. The Examiner asserts that Kohama teaches all of the cited limitations except the cutting edge of the moving blade 18 rounded to a radius 24. The Examiner asserts that Li shows a movable blade 18 to have a radius 24; and that it would have been obvious for one skilled in the art to have modified Kohama by making the cutting edge 22 rounded in order to eliminate slivers. The Applicant respectfully traverses these rejections, and requests reevaluation of these claims by the Board in light of the foregoing arguments.

The Applicant respectfully calls the Board's attention to column 2, lines 45-62 of the Li et al reference. The Applicant calls attention to the fact that Li reference states "the use of a zero degree cutting angle has been found to produce an unacceptably high amount of slivers: [for use on aluminum]". The Li reference, therefore utilizes a radiused cutting edge in combination with an angled cutting arrangement (see Figure 2, the cutting blade approaches the blank from an angle). It should be noted that the Li reference is directed towards the same problems as the present invention, namely the elimination of slivers during the trimming of aluminum parts. It is equally significant to note that the Li reference in Table 1 found that a radiused blade when used at a zero degree cutting angle (perpendicular to the blank) is still quoted as producing significant slivers when used with small clearances (5%). The Li reference addressed this by angling the cutting angle.

The Examiner asserts that the support illustrated in Kohama would be obvious to combine with Li to arrive at the present invention. The Applicant respectfully

disagrees and traverses this assertion. The Applicant notes that Kohama does not support the scrap as asserted by the office action. Kohama, rather, supports a continuously fed blank 129. Therefore, the support of the blank 129 in Kohama is dictated by the fact that additional, non-damaged, parts are intended to be cut out of the blank 129. The Kohama reference does not even address the use of a support 27 to reduce sliver generation. Therefore, it is improper to read a motivation to combine into either of the two references. Most significantly, however, the Applicant notes that Kohama was published more than 10 (ten) years prior to the filing of the Li et al reference. Li was directed to the same issue the present invention. Li itself recognized that a "zero degree cut results in the least amount of normal stress" (col 3, lines 32-34). And yet, Li found it necessary to introduce an increased cutting angle in order to reduce slivers even utilizing a cutting edge with a radius (thereby teaching away from any combination). If Kohama would be obvious to combine with the subject matter to arrive at the present invention, why would not Li utilize it as does the present invention to accomplish minimized slivers, with minimum clearance, and using a zero degree cutting angle. As the Li reference was directed to the same problem, and utilized a rounded cutting radius, and was filed more than a decade after the publication of Kohama, the Applicant submits that the combination is non-obvious and the present claims should be allowed.

Ground 2 rejections

The Applicant respectfully asserts that ground 2 as defined above 35 USC 103(a) over Madsen (US 3,167,985) in view of Li et al (US 5,820,999) is improper and should be overturned. The Examiner asserts that Madsen teaches all of the cited

limitations except the cutting edge of the moving blade rounded to a radius. The Examiner asserts that Li shows a movable blade to have a radius; and that it would have been obvious for one skilled in the art to have modified Madsen by making the cutting edge rounded in order to eliminate slivers. The Applicant respectfully traverses these rejections, and requests reevaluation of these claims by the Board in light of the foregoing arguments.

The Applicant respectfully incorporates the above arguments regarding the Li et al reference as put forth in the Kohama combination arguments. The Applicant reasserts that the Li reference, therefore utilizes a radiused cutting edge in combination with an angled cutting arrangement; is directed towards the same problems as the present invention; is still quoted as producing significant slivers when used with small clearances when used at a zero degree cutting angle; and addressed the problem by angling the cutting angle.

The Examiner asserts that the support illustrated in Madsen would be obvious to combine with Li to arrive at the present invention. The Applicant respectfully disagrees and traverses this assertion. The Madsen reference does not even address the use of a support to reduce sliver generation or sliver generation at all. Therefore, it is improper to read a motivation to combine into either of the two references. Most significantly, however, the Applicant notes that Madsen (in by far an even stronger showing than the Kohama reference) was published more than 30 (thirty) years prior to the filing of the Li et al reference. Li was directed to the same issue the present invention. Li itself recognized that a "zero degree cut results in the least amount of normal stress" (col 3, lines 32-34). And yet, Li found it necessary to introduce an

increased cutting angle in order to reduce slivers even utilizing a cutting edge with a radius (thereby teaching away from any combination). If Madsen would be obvious to combine with the subject matter to arrive at the present invention, why would not Li utilize it as does the present invention to accomplish minimized slivers, with minimum clearance, and using a zero degree cutting angle. The zero-degree cutting angle produces a much more desirable cut surface on the metal rather than an angled surface as results from Li. As the Li reference was directed to the same problem, and utilized a rounded cutting radius, and was filed more that a three decades after the publication of Madsen, the Applicant submits that the combination is non-obvious and the present claims should be allowed

The Applicant thereby requests the Board to review the Examiner's rejection of these claims. Therefore, because the references are believed to be not properly combinable to arrive at the limitations of the present invention, Applicant respectfully requests the Board to reverse the Examiner's rejections.

IX. Appendix

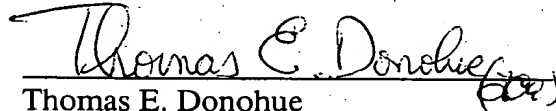
A copy of each of the claims involved in this appeal, namely claims 1-4,12 and 13, is attached hereto as Appendix A.

X. Conclusion

For the reasons advanced above, Applicant respectfully contends that each claim is patentable. Therefore, reversal of all rejections is requested.

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APPENDIX A

1. An apparatus for trimming scrap from a blank comprising:
a steady blade;
a clamping pad securing the blank to said steady blade;
a moving blade movable past said steady blade for trimming the blank,
said moving blade moving substantially perpendicular to an upper surface of said
blank;

a radius formed on the leading edge of said moving blade adapted to
reduce defects in the blank associated with the trimming process; and

a support element in communication with the scrap and adapted to
reduce defects in the blank associated with the trimming process, said support element
moving substantially perpendicular to said upper surface.

2. An apparatus as described in claim 1 wherein said support
element reduces bending in the scrap.

3. An apparatus as described in claim 1, wherein said support
element maintains the scrap substantially parallel to its original orientation.

4. An apparatus as described in claim 1, wherein said support
element comprises:

a plate; and

a elastic pad.

5. (Withdrawn) An apparatus as described in claim 1, wherein
said support element comprises:

a plate; and

an elastic pad.

6. (Withdrawn) An apparatus as described in claim 1, wherein
said support element comprises:

a plate; and

a spring element.

7-11. (Cancelled)

12. A method of reducing the production of defects during trimming operations comprising:

holding a blank between a steady blade and a clamping pad;

moving a moving blade past said steady blade to trim scrap off of said blank, said moving blade moving perpendicular to an upper surface of said blank;

supporting said scrap to reduce defects in said blank associated with the trimming process;

keeping said scrap substantially parallel to said scrap's original orientation during the trimming process; and

reducing the strain concentration caused by said moving blade on said blank through the use of a radius formed on the leading edge of said moving blade.

13. A method as described in claim 12 wherein said supporting said scrap comprises:

preventing bending in said scrap during the trimming process.

14-16. (Cancelled)